

REMARKS:

Claims 1-7 and 9-14 were previously pending in the application. By this paper, claim 5 has been canceled and claims 1 and 6 have been amended. Applicant requests reconsideration in view of these amendments and the following remarks.

Claim 1 is directed to a process for the preparation of hydrogen and a gas containing a mixture of hydrogen and carbon monoxide from methane. In one portion of the process, methane is partially oxidized via a non-catalyzed reaction to prepare an effluent comprising a mixture of hydrogen and carbon monoxide having a temperature above 700 °C. In a second portion of the process, methane is subjected to catalytic steam reforming to produce a product having a hydrogen to carbon monoxide molar ratio of greater than 2. The steam to carbon ratio is less than one in this portion of the process. Heat for the steam reforming process is provided by convective heat exchange between the steam reformer reactor zone and the effluent of the partial oxidation process. In a third portion of the process, hydrogen is separated from all or part of the steam reforming product and part of the steam reforming product is fed to the partial oxidation step.

In the Office Action, Claim 1-7 were rejected under 35 U.S. C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fuderer.

Fuderer is directed to a process and apparatus for primary and secondary catalytic steam reforming of hydrocarbons. The integrated primary-secondary reforming operations are carried out with the partly reformed product effluent from the reformer tubes of the primary reforming zone passing to a catalyst-free reaction space at the feed end of a catalyst bed in the secondary reforming zone. Heat of reaction generated in the reaction space is used to provide the heat necessary for the primary and secondary reforming operations.

This process differs from the invention of Claim 1 in that all of the effluent from the primary reformer is passed directly to the reaction space without hydrogen being removed from all or part of the steam reforming product first. Further, as set forth in column 8, lines 54-56, the steam to hydrocarbon ratio in the feed is from 2 to 4 in Fuderer while it is less than 1 in the present invention. Accordingly, applicant submits that current Claim 1 is neither anticipated by nor obvious in view of Fuderer. The same applies to Claims 2-4 and 6-7 since they depend from Claim 1.

Claims 9-14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Fuderer in view of applicant's admitted prior art. Applicant submits that claims 9-14 are patentable for the reasons stated above with respect to claim 1.

In view of the foregoing, Applicant submits that the claims are now in condition for allowance and favorable consideration by the Examiner. Should the Examiner find any impediment to the allowance of the claims that could be corrected by a telephone interview, the Examiner is requested to initiate such an interview with the undersigned.

Respectfully submitted,

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